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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/809,197	03/25/2004	Paul Wei	1055-D3734	5995

34456 7590 10/13/2005
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EXAMINER

MARCHESCHI, MICHAEL A

ART UNIT	PAPER NUMBER
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1755

DATE MAILED: 10/13/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/809,197

Applicant(s)

WEI ET AL.

Examiner

Michael A. Marcheschi

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-34 is/are pending in the application.
4a) Of the above claim(s) 23-34 is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-22 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. ____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 3/25/04, 6/30/04, 2/25/05, 9/6/05
- 4) ☒ Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: ____.

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Restriction to one of the following inventions is required under 35 U.S.C. 121:

- I. Claims 1-22, drawn to a coated abrasive, classified in class 51, subclass 295.
- II. Claims 23-34, drawn to a method, classified in class 427, subclass 264.

The inventions are distinct, each from the other because of the following reasons:

Inventions I and II are related as process of making and product made. The inventions are distinct if either or both of the following can be shown: (1) that the process as claimed can be used to make other and materially different product or (2) that the product as claimed can be made by another and materially different process (MPEP § 806.05(f)). In the instant case, the product as claimed can be made by another and materially different process, such as one using make and size coatings (one not using the claimed specific formulation).

Because these inventions are distinct for the reasons given above and have acquired a separate status in the art as shown by their different classification, restriction for examination purposes as indicated is proper.

Because these inventions are distinct for the reasons given above and have acquired a separate status in the art because of their recognized divergent subject matter, restriction for examination purposes as indicated is proper.

Because these inventions are distinct for the reasons given above and the search required for Group I is not required for Group II, restriction for examination purposes as indicated is proper.

During a telephone conversation with Jeffrey S. Abel on 7/25/05 a provisional election was made with traverse to prosecute the invention of Group I, claims 1-22. Affirmation of this

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election must be made by applicant in replying to this Office action. Claims 23-34 are withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the application. Any amendment of inventorship must be accompanied by a request under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(i).

Claims 12 and 15 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 12 is indefinite because it defines “the balance of the binder formulation” and “the balance” implies that the binder formulation was initially used before. Since the claims do not define any prior use of this formulation, how can a “balance of binder formulation” be used in claim 12. Is all of the binder formulation used in the mixing step?

Claim 15 is indefinite because the examiner is unclear as to if all of the substrates (paper, cotton and polyester) are treated with a saturant or if only the cotton and polyester are.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

- (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are

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such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-22 are rejected under 35 U.S.C. 103(a) as obvious over Wei et al. (724) alone of in view of Abrahamson⁹ and Christianson.

Wei et al. teaches in column 2, line 60-column 3, line 5, column 4, line 7-column 5, line 6, line 68 and the claims, a coated abrasive article comprising a substrate (paper, fabric, etc.) and an abrasive layer attached thereto, wherein the abrasive layer comprises abrasive particles (alpha alumina) and a binder formulation which comprises a mixture of a radiation (UV, etc.) curable component (acrylated oligomers) and a thermally curable component (epoxy resin). A silane coupling agent can also be used in the formulation. The surface of the coated abrasive article is embossed (i.e. by using a patterned tool) to impart the desired shape (continuous or patterned.

Abrahamson teaches in column 3, lines 27-28 that thermally curable binders for coated abrasives can either be in powder or liquid form.

Christianson teaches in column 7, lines 54-62 that when using a coupling agent, either the coupling agent may be mixed with the binder or initially coated on the abrasive particles prior to mixing with the binder.

With respect to the binder, although not defined as being in powder form, no distinction is seen to exist because the final product is the same, irrespective of a powder binder being used in the binder mixture. The binder of the **final product will not be a powder once it is cured**, thus the powder limitation is only defining the intermediate mixture used to form the final product. In other words, since the final product will not contain a powder, no distinction is seen exist between the reference final product and the claimed final product. Assuming arguendo,

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although the primary reference does not make mention of the form of the binder used to make the initial mixture, the absence of a teaching of the binder form broadly encompasses and therefore makes obvious the use of any binder form, either liquid or powder. Finally, and in the alternative, to support the examiners statement above, Abrahamson teaches that thermally curable binders for coated abrasives can either be in powder or liquid form and the use of any conventional binder form, as the binder form according to the primary reference, would have been well within the scope of the skilled artisan. With respect to the uniform mixture, although not literally defined, it is examiners position that when using the above mixture of binders, one skilled in the art would have known to make a uniform mixture of the binders in order to optimize the homogeneity of the formulation which would optimize the bonding of the abrasive particles. With respect to claim 5, the reference states that mixtures of binders can be used (defines specific binders used) and this (the limitation mixture) broadly encompasses the use of any mixture of binders including the mixture of two UV curable binders in admixture with a thermally curable binder. In addition, it is prima facie obvious to combine two or more materials disclosed by the prior art to form a third material (mixture of UV curable binders) that is to be used for the same purpose. In re Kerkhoven 205 USPQ 1069. In view of this, the limitations of claims 1-11 and 17 are met.

With respect to the limitations of claims 12-14, the coupling agent used in the primary reference, as defined by the trade names, reads on the claimed materials. Although the abrasive grains are not defined as being treated with this material prior to mixing with the binder, this (treated) is a process limitation in a product by process claim and process limitations to define the product and "product-by-process" claims do not patentably distinguish the product even

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though made by a different process. *In re Thorpe* 227 USPQ 964. In addition, the final abrasive layer will contain abrasive grains, a binder and a coupling agent and thus no distinction is seen to exist between the final abrasive layer of the reference and that of the claimed invention. In other words, the process used to make the final abrasive layer (i.e. treating of abrasive grains) does not seem to impart a patentable distinction to the final product. Assuming *arguendo*, and in the alternative, although the primary reference does not make mention of the initial coating of the abrasives with a coupling agent, this concept is obvious and clearly within the scope of the skilled artisan because Christianson teaches that this is a well known way to incorporate a coupling agent into an abrasive/binder formulation as is an alternative technique to mixing the coupling agent with the binder and abrasive particles in a single step. The interchangeability of functionally equivalent steps is within the level of the skilled artisan.

With respect to the substrate, the substrate can have a smooth surface coating and a specific example is SURLYN coated cloth and this reads on the limitations of claim 15-16.

With respect to the surface features, the primary reference states that the surface of the coated abrasive article is embossed to impart the desired shape (continuous or pattern) and this broadly reads on claims 18-22.

In view of the teachings as set forth above, it is the examiners position that the references reasonably teach or suggest the limitations of the rejected claims.

A reference is good not only for what it teaches but also for what one of ordinary skill might reasonably infer from the teachings. *In re Opprecht* 12 USPQ 2d 1235, 1236 (CAFC 1989); *In re Bode* USPQ 12; *In re Lamberti* 192 USPQ 278; *In re Bozek* 163 USPQ

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545, 549 (CCPA 1969); *In re Van Mater* 144 USPQ 421; *In re Jacoby* 135 USPQ 317; *In re LeGrice* 133 USPQ 365; *In re Preda* 159 USPQ 342 (CCPA 1968). In addition, "A reference can be used for all it realistically teaches and is not limited to the disclosure in its preferred embodiments" See *In re Van Marter*, 144 USPQ 421.

The subject matter as a whole would have been obvious to one having ordinary skill in the art at the time the invention was made to have selected the overlapping portion of the range disclosed by the reference because overlapping ranges have been held to be a prima facie case of obviousness, see *In re Malagari*, 182 U.S.P.Q. 549; *In re Wertheim* 191 USPQ 90 (CCPA 1976).

Evidence of unexpected results must be clear and convincing. *In re Lohr* 137 USPQ 548. Evidence of unexpected results must be commensurate in scope with the subject matter claimed. *In re Linder* 173 USPQ 356. To establish unexpected results over a claimed range, applicants should compare a sufficient number of tests both inside and outside (i.e. as well as the upper and lower limits) the claimed range to show the criticality of the claimed range. *In re Hill* 284 F.2d 955, 128 USPO 197 (CCPA 1960).

The additional references cited on the 1449 have been reviewed by the examiner and are considered to be art of interest since they are cumulative to or less than the art relied upon in the above rejections.

Any foreign language documents submitted by applicant has been considered to the extent of the short explanation of significance, English abstract or English equivalent, if appropriate.

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael A. Marcheschi whose telephone number is (571) 272-1374. The examiner can normally be reached on M-F (8:00-5:30) First Friday Off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jerry Lorengo can be reached on (571) 272-1233. The fax phone number for the organization where this application or proceeding is assigned is (571) 273-8300

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

8/05
MM

Michael A Marcheschi
Primary Examiner
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